

## TARGE ANALYTE SENSORS UTILIZING MICROSPERES

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### Abstract of the Invention

A microsphere-based analytic chemistry system and method for making the same is disclosed in which microspheres or particles carrying bioactive agents may be combined randomly or in ordered fashion and dispersed on a substrate to form an array while  
10 maintaining the ability to identify the location of bioactive agents and particles within the array using an optically interrogatable, optical signature encoding scheme. A wide variety of modified substrates may be employed which provide either discrete or non-discrete sites for accommodating the microspheres in either random or patterned distributions. The substrates may be constructed from a variety of materials to form either two-dimensional or three-  
15 dimensional configurations. In a preferred embodiment, a modified fiber optic bundle or array is employed as a substrate to produce a high density array. The disclosed system and method have utility for detecting target analytes and screening large libraries of bioactive agents.